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# UTILIZATION OF DENTAL SERVICES AMONG MEDICAID ENROLLED PREGNANT WOMEN IN VIRGINIA

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## ABSTRACT

The study evaluated the impact of the Virginia Medicaid dental benefit on dental services utilization among pregnant women enrolled in Medicaid. Data from a total of 10,395 women who had at least one dental claim during the 2015-2017 period were included in the study. The number of dental visits and dental services utilized per person grew from an average of 2.2 visits and 7 services in 2015 to 3.1 visits and 10.5 services in 2017, respectively. In 2017, of all dental services used, 6% were for preventive services and 59% were for treatment services. Continued efforts and targeted interventions are required to improve the oral health of pregnant women enrolled in Virginia Medicaid.

## INTRODUCTION

Oral Health is an integral part of prenatal health care for pregnant women (1). Poor oral health has been associated with poor quality of life (2). When left untreated, dental problems such as dental caries and its sequelae can cause pain, infections, and lead to complex and additional treatment needs (3). Furthermore, evidence suggests that gingival bleeding and periodontal disease are associated with poor pregnancy outcomes and can impact maternal as well as infant birth outcomes (4, 5). However, dental use among pregnant women is very low. Nationally, one out of two women did not have a preventive dental visit during pregnancy (6). These oral health disparities are further widened among low-income and minority women as they carry a disproportionate burden of dental disease and have limited access to dental care (7, 8). In 2011, women in the low-income group were nearly three times more likely to report a dental problem and eight times less likely to seek dental care compared to their high-income counterparts (9). According to a recent study, 33% of pregnant women in Virginia reported having no dental insurance during 2012-2014 (10). Moreover, women who were of Hispanic ethnicity had high school or less education, had no dental insurance, and those with low family income were

much less likely to have a dental visit during pregnancy compared to their respective counterparts.

One of the National Performance Measures (NPM) for the Maternal and Child Health program (MCH) is to increase the number of women who had a preventive dental visit during pregnancy (NPM 13.1) (11). At least 18 states including Virginia have selected this measure as their programmatic priority. To support this national measure and improve the oral health of women and their children, professional organizations such as the American College of Obstetricians and Gynecologists (ACOG) and the American Dental Association have developed recommendations for oral health care during pregnancy (12, 13). However, despite available recommendations and guidance, oral health care often goes unattended during pregnancy and disparities remain (10, 14).

To address the health inequalities and improve the oral health of pregnant women in Virginia, Governor McAuliffe, under the 'Healthy Virginia plan', directed the Department of Medical Assistance Services (DMAS) in September 2014, to issue emergency regulations to provide comprehensive dental coverage to all pregnant women age 21 and older who

Characteristics	Count (%)
<b>Total</b>	<b>10,395 (100%)</b>
<b>Fiscal Year</b>	
2015	1,133 (10.9 %)
2016	3,954 (38.0 %)
2017	5,308 (51.1 %)
<b>Age</b>	
21 – 29 years	6851 (65.9%)
30 – 39 years	3321 (32.0%)
40 – 49 years	221 (2.1%)
50 years and above	2 (0.02%)
<b>Race</b>	
White	5,824 (56.0%)
Black	3,841 (37.0 %)
Hispanic	46 (0.4 %)
Other	684 (6.6%)
<b>Citizenship</b>	
US citizen	8,847 (85.1 %)
Non-US citizen	1,548 (14.9 %)
<b>SES Index</b>	
Lowest	1,949 (18.8 %)
Second	1,866 (18.0 %)
Third	2,421 (23.3 %)
Highest	4,159 (40.0 %)
<b>DMAS Region</b>	
Central Virginia	2,795 (26.9 %)
Winchester/Northern Virginia	2,744 (26.4 %)
Tidewater	2,314 (22.3 %)
Far Southwest	667 (6.4 %)
Halifax/Lynchburg	372 (3.6 %)
Roanoke/Alleghany	881 (8.5 %)
Charlottesville	622 (6.0 %)
<b>Number of Months Enrolled</b>	
>1 and <=3 months	1,018 (9.8 %)
<=12 month	5,931 (57.1 %)
12+ months	3,446 (33.2 %)

Table 1. Characteristics for women who had at least one dental service claim and were enrolled for more than one month

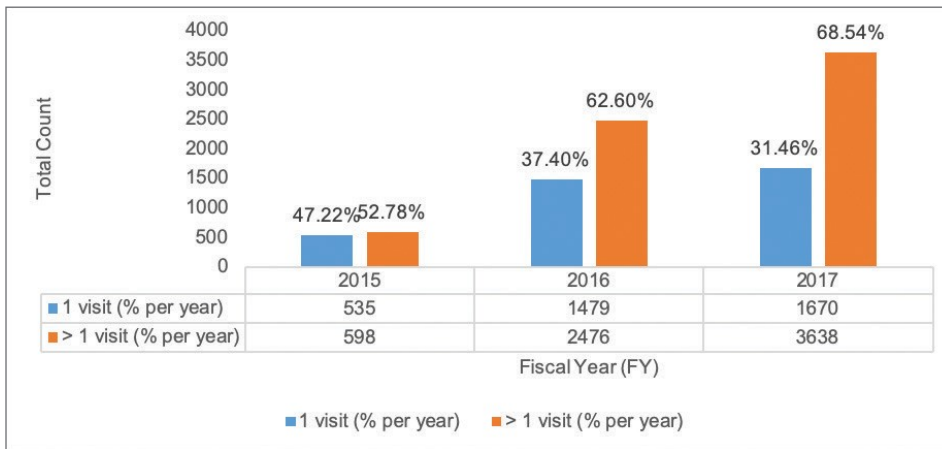


Figure 1. Proportion and number of women who had 1 or more than 1 dental visit by year

were eligible for Medicaid and Family Access to Medical Insurance Security (FAMIS) (15). This newly implemented Medicaid dental benefit for pregnant women went into action on March 1, 2015, covered comprehensive dental services, including diagnostic, preventive, restorative, and operative procedures. In the same year, the Virginia Department of Health (VDH), Dental Health program (DHP) received Perinatal and Infant Oral Health Quality Improvement Expansion grant funding from the Health Resources and Services Administration (HRSA) and started developing several initiatives to advance oral health among Virginia women and infants. VDH DHP collaborated with several key partners in the state including the VCU School of Dentistry. One of the objectives of the VDH and VCU collaboration was to conduct research to increase VDH's data evaluation capacity. This study was one of many that were undertaken to understand the impact of the new dental benefit policy on oral health utilization among Medicaid enrolled pregnant women.

Using Virginia Medicaid claims data, the primary aim of this descriptive study was to examine the use of dental benefits among Medicaid-enrolled pregnant women during the early implementation period (2015-2017). Additionally, the study also estimated the average number of dental visits and dental services and examined the type of dental services used by pregnant women.

## METHODS

The 2015-2017 Medicaid claims data from the Virginia Department of Medical Assistance Services (DMAS) was obtained. Data sharing agreements were completed and the project was approved by the IRB as exempt. The data from eligibility and claims files were merged and grouped by fiscal year (FY) to compare the utilization of dental care by year (for example, July 1, 2015 – June 30, 2016 is FY 2016). Since the dental benefit was implemented in March 2015, the data for the FY 2015 only included claims between March 1-June 30, 2015.

For the final data set, pregnant women who were enrolled for less than 30 days were excluded (N=1,199). Sample characteristics were summarized by race/ethnicity, age, socio-economic status (SES) index. The SES index was created for each participant's (woman's) geographic locality using the Area Health Resource Files (AHRF) with the 4th quartile having the highest SES (16). Additional variables included citizenship status, region as designated by DMAS, and number of months enrolled. Each dental service represents a separate claim in the data. Total number of unduplicated service claims was counted for each year. Type of services was categorized into three groups: diagnostic (included all codes between D0100-D0999), preventive (codes between D1000-D1999), and treatment (codes between D2000-D9999) (17). Average per person number of visits, services, cost per visit, and type of services received was examined by year. Descriptive analysis was conducted, and

associations were tested by chi-squared tests and t-test depending on the type of data. P values < 0.05 were considered statistically significant unless specified otherwise.

## RESULTS

A total of 10,395 women who had at least one dental service during 2015-2017 time-period were included in the study. A total of 1,133 women used dental services in 2015, 3,954 in 2016, and 5,308 in 2017. Three-year data was aggregated to examine the sociodemographic characteristics of the study population. The majority of women who had dental visits were between 21-29 years of age (65.9%), White (56%) and had US citizenship (85.1%). Only 0.5% of all women were Hispanic. When categorized by SES index, 40% of women were from the highest SES index, and 18.8% were from the lowest. Geographic location showed wide variation with more than 75% of women who used dental services were from Central Virginia, Winchester/Northern Virginia, and the Tidewater region; the remaining four regions constituted less than 25% of the women (Table 1).

The number of women who had more than one visit also grew during the study period from 52.8% in 2015 to 68.5% in 2017 (Figure 1).

The number of dental visits increased from an average of 2.2 visits per person in 2015 to 3.1 visits in 2017, and dental services increased from 7 services per patient to 10.5 services during the same period. The average cost per person, per visit and per service, increased significantly from 2015 to 2017. In 2017, the average cost per patient was \$978, per visit was \$313, and per service was \$93 (Table 2).

The number of dental service claims grew exponentially during the three-year period. During the partial year 2015, there were 7,922 service claims, 35,408 in 2016 and in 2017, a total of 55,814 dental service claims were made, 58% more than in the previous year (Table 3). The distribution of types of dental services was examined by each year at person level and services level. The use of all types of services

saw an increase from year to year with a substantial increase in treatment services. Only 50.4% of the women used preventive services compared to 77.5% of women who used treatment services. At the services level, in 2017, 6% of all dental services provided were preventive, 35% were diagnostic, and 59% were treatment related (Table 3).

## DISCUSSION

In Virginia, the number of pregnant women who utilized dental care under the newly available Medicaid benefit increased from 2015 to 2017. The data suggests increased uptake and improved awareness of the available pregnancy dental benefit among Medicaid eligible women.

According to recent Virginia PRAMS data, dental visits among Hispanic women were much lower than non-Hispanic White and Black women (10). Our study findings suggest a similar but more extreme pattern among Medicaid enrolled women. Nearly 56% of women who utilized dental care were White, 37% were Black, and only 0.4% were Hispanic. According to 2014-2016 data, Hispanic women made up 10.6% of the total female population between the ages of 15-44 years in Virginia, and of all live births in Virginia, 13.5% were Hispanic (18). Our results suggest wide differences in the use of dental benefit by race/ethnicity groups and emphasize the need for increasing awareness among these subgroups. One of the reasons for the low use of dental care among Hispanic women may be misconceptions about the use of dental care during pregnancy. A study among pregnant women found that Hispanic women had significantly lower oral health knowledge and belief score compared to White or African American women (19). Additionally, barriers such as transportation, provider and appointment availability, cultural beliefs, or difficulty navigating the healthcare system can impact the use of dental care (8, 20). Since low-income minority populations are at high risk of dental problems and poor maternal and birth outcomes (20), it is crucial to understand the differences in the use of care by various groups and develop targeted interventions to improve dental care utilization among them.

The average number of visits and the number of dental services per person who utilized Medicaid dental benefit increased in 2017 compared to 2016, suggesting that access to and use of dental care improved. A recent DMAS report showed an increase in the number of inquiries by both members and providers regarding the pregnancy dental benefit program (CHIPAC dashboard), which suggest improved awareness of the dental benefit. Another reason could be early use of and awareness of the dental benefit by pregnant women during the eligibility period compared to previous years providing them more time for scheduling visits and getting dental services. However, we did not have information on the delivery date to determine the timing of first dental visit in relation to the dental benefit eligibility period to test the early use and awareness hypothesis. Other reasons could be that due to better awareness of the benefit among providers, dental providers were able to accommodate more patients in their schedule, and medical providers referred more Medicaid enrolled pregnant women who previously did not have dental coverage. This data, however, did not have information on provider awareness of the benefit by year.

The percentage of treatment services and diagnostic services during all three years were much higher compared to preventive visits suggesting that there was a high demand for treatment services in this group. Recent data suggests that nearly 20% of all pregnant women in Virginia needed to see a dentist for a dental problem (21). Furthermore, low-income women were three times more likely to report a dental problem compared to their higher income counterparts, suggesting high demand

of dental treatment among low-income women (9). The results support previous findings and shows that treatment services claims increased by more than eight percentage points from 2015 to 2017. Another reason for high demand for treatment services could also be a result of no dental coverage for the adult Medicaid population suggesting significant pent-up demand in this group. Recent Virginia Medicaid expansion that went in effect on January 1, 2019 has limited dental service coverage depending on the managed care organization, but the majority of adults enrolled in Virginia Medicaid do not have dental coverage.

Good oral health during the perinatal period is essential for both maternal and infant's health and wellbeing. Routine

	Mean (SD)	P-value*
<b>Average number of visits</b>		<0.0001
2015	2.20 (1.7)	
2016	2.73 (2.1)	
2017	3.13 (2.4)	
<b>Average number of dental services per person</b>		<0.0001
2015	6.99 (7.2)	
2016	8.95 (8.5)	
2017	10.52 (9.5)	
<b>Average cost per patient</b>		<0.0001
2015	\$564.44 (\$880.4)	
2016	\$781.79 (\$1127.2)	
2017	\$977.77 (\$1336.2)	
<b>Average cost per visit</b>		<0.0001
2015	\$256.73 (\$336.3)	
2016	\$286.19 (\$349.3)	
2017	\$312.67 (\$389.5)	
<b>Average cost per service</b>		<0.0001
2015	\$80.73 (\$100.1)	
2016	\$87.32 (\$115.5)	
2017	\$92.99 (\$123.1)	

\*Satterthwaite T-test between FY 2016 and FY2017

Table 2. Average per person number of visits, services and cost by fiscal year

preventive and restorative dental procedures are safe throughout pregnancy, can prevent progression of dental diseases and are supported by dental and medical organizations (9,10,18). All health professionals should educate women about safety and importance of oral health during pregnancy to improve oral health utilization among this group.

### LIMITATIONS:

This was the first study to evaluate the impact of the newly implemented dental benefit on improving utilization of dental care among pregnant women. However, there are a few limitations to this study. The study used claims data and information was available only for those women who had dental claims. This limits our analysis to only a subgroup of all benefit eligible women and we do not know how these women differ from those who were eligible for the dental benefit but did not have a dental visit. To further enhance our understanding of this population's oral health needs, access and utilization of dental care, our next steps will include exploring data for all benefit-eligible women, provider characteristics, geographic differences, specific types of dental treatment services, and association of oral health visits with maternal and child health outcomes.

### CONCLUSIONS:

- There was a significant increase in the number of pregnant women using dental care through the Medicaid dental benefit during 2015-2017.
- Consistently higher numbers of

treatment services claims during each year suggest the high need for dental care in this group.

- Targeted interventions and outreach is needed among racial subgroups, especially Hispanic women, to understand the barriers they face in using the available Medicaid dental benefit and improve dental care access and utilization among pregnant women.

Financial disclosures: None to declare.

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	Pregnant Women			P-value*	Dental Service Claims			P-value
Year	2015	2016	2017		2015	2016	2017	
Total number	1133	3954	5308		7922	35391	55814	
<b>Type of service</b>								
Preventive	44.6%	45.4%	50.4%	<0.0001	7.6%	6.5%	6.0%	0.014
Diagnostic	88.7%	90.3%	93.6%	<0.0001	35.9%	36.4%	35.1%	<0.0001
Treatment	69.3%	74.1%	77.5%	<0.0001	56.5%	57.1%	59.0%	<0.0001

\*Proportion-test between fiscal years for each respective categories

Table 3. Distribution of types of services at the person level and the claims level